Notice of Allowability	Application No.	Applicant(s)	
	10/534,783	MACGREGOR ET AL.	
	Examiner	Art Unit	
	Kenneth J. Whittington	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the telephone interviews on July 11 and 18, 2007*.

2. ☒ The allowed claim(s) is/are *1-25,29 and 30*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 10/3/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

REENA AURORA
PRIMARY EXAMINER
TECHNOLOGY CENTER 2600

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in telephone interviews with Don W. Bulson (Reg. 28192) on July 11, 2007 and July 18, 2007.

The application has been amended as follows:

Claims 26-28 have been cancelled.

Claim 1 has been amended as follows:

1. An electromagnetic survey method for surveying an area that is thought or is known to contain a subterranean hydrocarbon reservoir, comprising:

transmitting a source electromagnetic signal from a source location;

detecting a detector signal at a detector location in response thereto;

obtaining survey data indicative of phase difference between first and second components of the detector signal

resolved along different first and second directions respectively; and

forming the phase difference between the first and second components to determine the presence or absence of a subterranean hydrocarbon formation.

Claim 12 has been amended as follows:

12. A method of analysing results from an electromagnetic survey of an area that is thought or known to contain a subterranean hydrocarbon reservoir, comprising:

providing survey data indicative of phase difference between first and second components of a detector signal resolved along different first and second directions respectively;

extracting the phase differences from the survey data; and

determining a metric from the phase differences [~~that is predictive of~~] to determine the presence or absence of hydrocarbon.

Claim 21 has been amended as follows:

21. A method of planning an electromagnetic survey of an area that is thought or known to contain a subterranean hydrocarbon reservoir, comprising:

creating a model of the area to be surveyed including a seafloor, a rock formation containing a postulated hydrocarbon reservoir beneath the seafloor, and a body of water above the seafloor;

setting values for depth below the seafloor of the postulated hydrocarbon reservoir and resistivity structure of the rock formation;

performing a simulation of an electromagnetic survey in the model; and obtaining from the model phase differences between first and second components of a detector signal resolved along different first and second directions respectively.

Claim 25 has been amended as follows:

25. A method for obtaining hydrocarbon from an area that contains a subterranean hydrocarbon reservoir, comprising:

performing an electromagnetic survey of the area to obtain survey data indicative of phase differences between first and second components of a detector signal resolved along different first and second directions respectively;

determining a metric from the phase differences that is predictive of the presence or absence of hydrocarbon;

identifying the subterranean hydrocarbon reservoir using the metric;

penetrating the subterranean hydrocarbon reservoir with a hydrocarbon-producing well;

extracting hydrocarbon from the subterranean reservoir using the hydrocarbon-producing well.

Claim 29 has been amended as follows:

29. A method for obtaining hydrocarbon from an area that contains a subterranean hydrocarbon reservoir, comprising:

extracting hydrocarbon from the subterranean hydrocarbon reservoir, the subterranean hydrocarbon reservoir having been determined to contain hydrocarbon by means of an electromagnetic survey comprising the steps of:

performing an electromagnetic survey of the area to obtain survey data indicative of the phase differences between first and second components of a detector signal resolved along <u>different</u> first and second directions respectively;

determining a metric from the phase differences that is predictive of the presence or absence of hydrocarbon; and

identifying the subterranean hydrocarbon reservoir using the metric.

EXAMINER'S REAONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: regarding the claims, the prior art does not show or teach taking a phase difference of a detector signals resolved along different first and second directions respectively to determine the presence or absence of subterranean hydrocarbon formations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

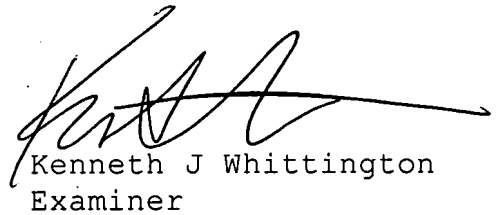
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US4079309 related to a method for determination of the presence of a tunnel or underground air space. The MacGregor et al. non-patent reference discloses a method of sub-sea formation measurements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Whittington whose telephone number is (571) 272-2264. The

examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kenneth J Whittington
Examiner
Art Unit 2862

kjw